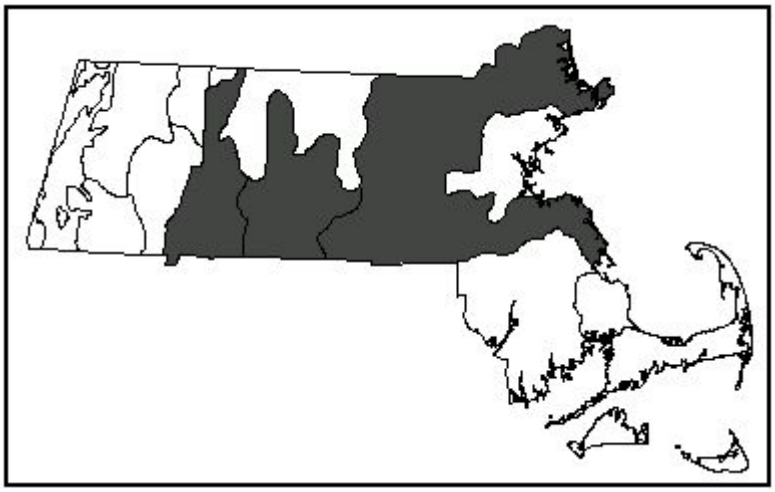
Community Name: **INLAND ATLANTIC WHITE CEDAR SWAMP**

Community ELCODE: CP1B1A2000

SRANK: S2



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Concept: Inland basin or seepage swamps dominated by Atlantic white cedar in the overstory. Hemlock, spruce, red maple, and yellow birch co-occur, and coastal indicator species are lacking.

Environmental setting: Basin or seepage wetlands generally occurring in the central part of the state. Inland AWC swamps are found at a wide range of elevations and may be underlain by sand and gravel, glacial lake sediments, or till deposits. There is typically some surface water movement, and some of the sites receive groundwater seepage from nearby steep till deposits. As in all AWC swamps, water-saturated peat overlies the mineral sediments, and standing water generally occurs for half of the growing season or longer. The water and soil are nutrient-poor, and particularly low in nitrogen and phosphorus. Soil pH is acidic (3.1-5.5) and leaf litter decomposition is slow.

Vegetation Description: Canopy trees in Inland AWC swamps differ depending on elevation. In sites lower than 700 ft. elevation, Atlantic white cedar (*Chamaecyparis thyoides*) is mixed with hemlock (*Tsuga canadensis*), red maple (*Acer rubrum*), and yellow birch (*Betula alleghaniensis*). At elevations above 700 ft., Atlantic white cedar is mixed with hemlock and spruce (*Picea* spp.). The low elevation sites typically have sweet pepperbush (*Clethra alnifolia*) and winterberry (*Ilex verticillata*) in the shrub layer, and high elevation sites have abundant mountain holly (*Nemopanthus mucronatus*). The herb layer of both low- and higher-elevation sites is similar with cinnamon fern, starflower and Canada mayflower (*Maianthemum canadense*) common. High-elevation sites also have northern species such as creeping snowberry (*Gaultheria hispidula*) and bunchberry (*Cornus canadensis*).

Associations: Motzkin (1991) described six AWC associations in Massachusetts. Inland AWC swamps include both his mixed hemlock-AWC-red maple-yellow birch type and spruce-hemlock-AWC type.

Habitat values for Associated Fauna: Inland AWC swamps can function as vernal pool habitat if water remains standing for 2-3 months and they lack fish; these areas provide important amphibian breeding habitat.

Associated rare plants:

RHODODENDRON MAXIMUM	GREAT LAUREL	T

Associated rare animals:

AMBYSTOMA JEFFERSONIANUM	JEFFERSON SALAMANDER	SC
AMBYSTOMA LATERALE	BLUE-SPOTTED SALAMANDER	SC
CLEMMYS GUTTATA	SPOTTED TURTLE	SC
CRANGONYX ABERRANS	MYSTIC VALLEY AMPHIPOD	SC
HEMIDACTYLIUM SCUTATUM	FOUR-TOED SALAMANDER	SC
MITOURA HESSELI	HESSEL'S HAIRSTREAK	SC

From: Swain, P.C. & J.B. Kearsley. 2001. Classification of the Natural Communities of Massachusetts. Version 1.3. Natural Heritage & Endangered Species Program, Division of Fisheries & Wildlife. Westborough, MA.

Examples with Public Access: Wilbraham Cedar Swamp, Wilbraham.

Threats: The two greatest threats to AWC swamps are land clearing for agricultural, commercial and residential development, and interference of normal hydrological functioning as a result of development. Atlantic white cedar has been cut extensively for posts and shingles for over three centuries. In an extensive statewide vegetation inventory funded by NHESP in 1990, no uncut stands were found, but several sites contained cedars that were 100-200 years old. Selective cutting is detrimental to the persistence of AWC swamps, because hardwoods, such as red maple, out-compete and replace AWC. Any alterations to the natural hydroperiod of AWC swamps threatens their persistence.

Management needs: Due to the limited distribution of AWC swamps, it is recommended that no clearing or filling of these wetlands be allowed. Atlantic white cedar will regenerate best following catastrophic disturbance events such as hurricanes and fires. Data suggest that in the absence of disturbance, red maple and shrubs increase in abundance at the expense of Atlantic white cedar. Fire suppression negatively threatens the long-term persistence of AWC swamps, and controlled burning practices may be an appropriate restoration tool in many areas. Controlled burning should be accompanied by small-patch clearcuts to be most effective. By clear-cutting small patches, generally 20 m x 20 m, and removing the slash and competing vegetation, pure, even-aged stands of Atlantic white cedar are able to regenerate. AWC swamps require a natural cycle of wet and dry periods for their survival and reproduction. Standing water for much of the year is unfavorable for both seed germination and seedling survival, and young seedlings are killed by both drowning and drought. It is recommended that any alterations in water levels be avoided, this includes development and road construction in uplands surrounding AWC swamps which can alter water levels. Where cedar wetlands are associated with river systems, it is important to maintain normal hydrologic regime of the river.

Synonyms

USNVC/TNC: Chamaecyparis thyoides-Tsuga canadensis/Lindera benzoin forest [CEGL006089], two of our sites correspond to Chamaecyparis thyoides/Rhododendron maximum forest [CEGL006355].

MA [old name]: SNE acidic seepage swamp, inland Atlantic white cedar association.

ME: Not described.

VT: Not described.

NH: Atlantic white cedar basin swamp; rich variants correspond to Atlantic white cedar seepage swamp.

NY: Inland Atlantic white cedar swamp.

CT: Some of our inland swamps are equivalent to the Chamaecyparis thyoides/Rhododendron maximum community.

RI: Atlantic white cedar swamp-Chamaecyparis thyoides/Rhododendron maximum variant; Chamaecyparis thyoides-Acer rubrum-Betula alleghaniensis variant.

Golet & Larson, 1974: Evergreen wooded swamp (WS-2).

Other: Motzkin, 1991. Boreal evergreen swamp forest type.

Author: J. Kearsley **Date:** 7/21/99

From: Swain, P.C. & J.B. Kearsley. 2001. Classification of the Natural Communities of Massachusetts. Version 1.3. Natural Heritage & Endangered Species Program, Division of Fisheries & Wildlife. Westborough, MA.